DI-*n*-BUTYL PHTHALATE
CAS # 84-74-2

Agency for Toxic Substances and Disease Registry ToxFAQs **July 1999**

This fact sheet answers the most frequently asked health questions (FAQs) about di-*n*-butyl phthalate. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Di-*n*-butyl phthalate is a man-made chemical that is added to plastics, paints, glue, hair spray, and other chemical products. It is a common environmental contaminant, and most people are exposed to low levels in the air, water, and food. No harmful effects from exposure to di-*n*-butyl phthalate in people have been reported. It has been found at 47 of the 1,177 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is di-*n*-butyl phthalate?

(Pronounced dī-n-byo͞ot′l thăl′āt)

Di-*n*-butyl phthalate is an odorless and oily liquid. It is colorless to faint yellow. It is slightly soluble in water and does not evaporate easily. Di-*n*-butyl phthalate will burn.

Di-*n*-butyl phthalate is a man-made chemical that was used to make soft plastics, carpet backing, paints, glue, insect repellents, hair spray, nail polish, and rocket fuel. Most of the di-*n*-butyl phthalate currently produced in the United States is used as an additive to some plastics to make them softer.

What happens to di-*n*-butyl phthalate when it enters the environment?

- When di-*n*-butyl phthalate is released to air as a vapor, it reacts with other chemicals in the air and usually breaks down within a few days. It can attach to particles in the air, and then it may not break down as fast.
- Di-*n*-butyl phthalate can be removed from the air by rain, snow, wind, and gravity and deposited on land and surface water.
- Most of the di-*n*-butyl phthalate in water attaches to sediment and settles out of the water or is broken down by bacteria. Small amounts may evaporate to the air.
- When released to soil, it attaches to soil particles and is broken down by bacteria.
- There is no evidence that it builds up in the food chain.

How might I be exposed to di-*n*-butyl phthalate?

- Most people are likely to be exposed to di-*n*-butyl phthalate because of its widespread use.
- People are most likely exposed by eating food that contains di-*n*-butyl phthalate, particularly fish and shellfish.
- Low levels of di-*n*-butyl phthalate are present in air around the world, and slightly higher levels may occur in city air.
- People who use products containing di-*n*-butyl phthalate, such as nail polish, may be exposed by breathing it in the air or getting it on their skin.
- If you work or live near a factory where di-*n*-butyl phthalate is made or used, you could be exposed to higher than usual levels.

How can di-*n*-butyl phthalate affect my health?

Adverse effects on people exposed only to di-*n*-butyl phthalate have not been reported. Workers exposed to di-*n*-

butyl phthalate and similar chemicals have experienced effects on the nervous system (pain, numbness, weakness) and high blood pressure, but there is no clear evidence that these effects are caused by di-*n*-butyl phthalate. Di-*n*-butyl phthalate appears to have a relatively low toxicity, and much larger amounts than normally encountered in the environment would be needed to cause injury.

Animal studies indicate that ingesting large amounts of di-*n*-butyl phthalate can affect the ability to reproduce, cause birth defects, and cause death in unborn animals. Decreased sperm production has been reported in several species; however, sperm production returns to normal after exposure stops. Large amounts of di-*n*-butyl phthalate applied to the skin of animals has caused irritation.

How likely is di-*n*-butyl phthalate to cause cancer?

No cases of cancer in humans have been attributed to di-*n*-butyl phthalate exposure. The carcinogenicity of di-*n*-butyl phthalate has not been adequately evaluated in animals, but the available evidence does not indicate that it causes cancer. The EPA has determined that di-*n*-butyl phthalate is not classifiable as to human carcinogenicity based on inadequate evidence in both humans and animals.

Is there a medical test to show whether I've been exposed to di-*n*-butyl phthalate ?

Tests are available to measure di-*n*-butyl phthalate in blood and body tissues, and its major breakdown products in urine. However, these tests cannot be used to predict the nature or severity of toxic effects. Because special equipment is needed, these tests are not usually done in the doctor's office.

Has the federal government made recommendations to protect human health?

The EPA recommends that levels of di-*n*-butyl phthalate in lakes and streams should be limited to 34 parts per million (34 ppm) to prevent possible human health effects from drinking water or eating fish contaminated with this chemical. Any release to the environment greater than 10 pounds of di-*n*-butyl phthalate must be reported to the EPA.

The Occupational Safety and Health Administration (OSHA) has set a limit of 0.43 ppm over an 8-hour workday, 40-hour workweek.

The federal recommendations have been updated as of July 1999.

Glossary

Carcinogenicity: Ability to cause cancer.
CAS: Chemical Abstracts Service.
Evaporate: To change into a vapor or a gas.
Ingesting: Taking food or drink into your body.
National Priorities List: A list of the nation's worst hazardous waste sites.
ppm: Parts per million.
Soluble: Able to dissolve.

Source of Information

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. Toxicological profile for di-*n*-butyl phthalate. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-639-6359. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.